

Labor Force Loss Due to Disability

RONALD W. CONLEY, Ph.D.

NATIONAL HEALTH SURVEY data for fiscal year 1966 indicate that about 50 percent of the civilian noninstitutional population suffers one or more chronic conditions (1). (The survey counts a person as having a chronic condition if he has had one 3 months or more or if at any time during the previous 12 months he has had any of the 39 conditions named on checklists of chronic conditions and impairments. For 11 of the 39 conditions, a person is counted if he has ever suffered from any of them.)

In most cases the conditions reported were not disabling. Yet, one of every 12 persons reported partial or total limitation in a major activity (working, homemaking, or going to school). The true proportion with limitation may be somewhat greater because the survey probably takes inadequate account of persons suffering from mental retardation, mental illness, and alcoholism and does not allow for chronically ill persons who have altered their major activity; for example, from remunerative work to housekeeping or to retirement. Of those who reported limitation in major activity during fiscal years 1960 and 1961 (the only years for which this information was collected), more than 80 percent were restricted for more than 1 year, and half of these were restricted for more than 5 years (2). Obviously, disability is a major problem in the United States.

To gain some further insights into the nature of disability and its effect on the labor force, the

Dr. Conley is an economist with the President's Committee on Mental Retardation.

data on disability that were collected by the National Health Survey during fiscal years 1962-63 and 1966 are analyzed here.

Demographic Characteristics of Disability

The following National Health Survey data for fiscal 1966 show the expected variation in the prevalence of disability among various social groups (1a).

1. More than twice as many men as women were unable to carry on a major activity. The disadvantage of men was especially pronounced among those aged 45 and over—the ratio was about 4 to 1.

2. Nonwhite persons (2.7 percent) reported 30 percent more total limitation of activity than white persons (2.2 percent).

3. Persons residing in Standard Metropolitan Statistical Areas reported considerably less inability to carry on a major activity (1.8 percent) than those residing in other areas—nonfarm (2.7 percent) or farm (2.3 percent).

4. The percentage of persons who reported total limitation of activity was more than four times as great among those aged 45-64 as among those aged 17-44, and persons aged 65 and over were almost five times as likely to suffer total limitation as those 45-64. Even if allowance is made for the increasing prevalence of chronic conditions among older age groups, the effect of age is striking. If only those persons within each group who actually suffered from chronic conditions are considered, the percentage who reported total limitation of activity was more than three times as high in the 45-64 age group as among those 17-44 and almost four times as

high among those 65 and over as among those 45-64.

5. More than one of every six persons 17 years of age and over with less than 5 years of schooling was unable to carry on a major activity (15.6 percent). This ratio dropped by almost two-thirds for those with 5 to 8 years of schooling (5.8 percent) and about eight-ninths for those with 9 to 11 years of schooling (1.7 percent). Total disability among persons with 12 years or more of schooling declined still further to about 1 percent.

Since the majority of chronic conditions originate in the generally nondiscriminatory effect of disease, congenital conditions, and accidents in the home and on the road, it might be expected that the prevalence of chronic conditions and their types, severities, and duration would not vary markedly between white and nonwhite persons, men and women, rural and nonrural residents, and persons with different educational attainments. However, National Health Survey data show the following rather surprising differences in the reported prevalence of chronic conditions among these social groups in 1966 (1*b*).

1. White persons (50.4 percent) reported chronic conditions 25 percent more often than nonwhite persons (39.4 percent). These differences almost vanish, however, if only those conditions which resulted in some activity limitation are considered (11.3 to 10.9 percent).

2. Similarly, women (50.4 percent) reported a few more chronic conditions than men (47.7 percent) but were less likely to report that these conditions resulted in activity limitation (10.8 to 11.7 percent).

3. On the other hand, the prevalence of chronic conditions showed relatively insignificant variations by place of residence; it was only slightly smaller among Standard Metropolitan Statistical Areas (48.4 percent) than outside these areas (50.4 percent).

4. By age and education, the data show that both the better educated and the more poorly educated were somewhat more likely to report chronic limitations than those with 9 to 12 years of schooling. Among those 17-44, for example, 60.4 percent of those with less than 5 years of schooling reported chronic conditions as opposed to 50.8 percent among those with 9

to 11 years of schooling and 59.1 percent among those with 16 years or more of schooling.

The extent to which differences in the reported percentages of chronic conditions can explain differences in rates of disability among various social groups is uncertain. It is unlikely, however, that the former differences can explain all of the latter differences. For instance, many of the differences in chronic condition rates can be explained by differences in the reporting of minor conditions and inadequate age standardizations. Moreover, such an explanation is contradicted by these facts: (a) nonwhite persons, men, and persons with an average education had fewer chronic conditions than white persons, women, and better educated persons but suffered more disability and (b) the percentages of persons who reported chronic conditions did not vary greatly between Standard Metropolitan Statistical Areas and the rest of the country, although the percentages who reported activity limitation did. If differences in chronic condition rates cannot explain all of the differences in disability rates, then the unexplained part must be due to differences in ability to adjust among the various social groups. Similarly, differences in ability to adjust must explain a large part of the markedly more severe effects of chronic conditions among older persons. My view is that differences in ability to adjust explain most of the differences in disability rates among the various social groups.

The superior ability of women to adjust to chronic limitations can be traced to the ease with which many may turn to homemaking with its flexible standards as to the amount, speed, and timing of work. Disabled urban residents have an advantage over their rural neighbors since they have a broader range of job opportunities; thus, they are more likely to find employment within their limitations. Evidently, their urban residence more than offsets the advantages offered by the flexible standards of farm employment.

The numbers of jobs available to aged, uneducated, and nonwhite persons are frequently restricted due to discrimination or sometimes lack of ability or adverse attitudes toward work. Among the chronically ill members of these groups, therefore, vocational failure would be greater than average even if their physical and

mental limitations did not exacerbate the effects of the other employment impediments. In addition, there are convincing reasons to believe that for most of these persons opportunities for work are reduced far more than the sum of the independent effects of the employment impediments would indicate.

First, chronic conditions may exclude persons from one type of job, and their age, race, or education may exclude them from another. Exclusion from either type of job might not be too serious, but denial of entry to both may render the prospects of vocational success negligible. For example, in some areas a blind Negro may be excluded from many of the jobs available to the blind because of his race. Second, some employers are willing to hire elderly, uneducated, nonwhite, or handicapped persons, but would hesitate to hire persons with more than one of these characteristics. Finally, a combination of employment impediments may reduce a person's capacity to adjust to one or the other. For example, it is difficult for the uneducated to learn Braille, and, at the same time, being blind makes it more difficult to obtain an education. (Although I have discussed only the combinatory effect of a chronic condition and advanced age, lack of education, and being nonwhite, the principle is obviously applicable to any combination of employment impediments; for example, multiple chronic conditions.)

Trends in Disability

Several trends in measures of the nation's health are worth noting. For instance, the proportion of the population who reported chronic conditions to National Health Survey interviewers rose by almost one-sixth between 1960 and 1966, and the proportion who reported partial limitation in their major activity increased by about one-fifth (from 41.4 to 49.1 percent). Through 1965, these increased percentages probably reflect improved enumeration; that is, a greater ferreting out of the less-severe types of chronic conditions, such as sinusitis, and a greater recognition of minor limitation of activity, such as an occasional day missed from work because of a headache. A sharp rise in the prevalence of chronic conditions in 1966 (from 45.8 to 49.1 percent) is mostly attributable to the fact that in that year persons were asked if they

had ever suffered from certain conditions, such as tuberculosis, rather than whether they had the disease in the past 12 months as had been the previous practice. However, this change in procedure probably did not affect significantly the number who reported activity limitation.

Another important relationship over time was that the indices of activity limitation appear to be slightly dependent upon the rate of unemployment, especially for women. In 1966, when the rate of unemployment fell below 4 percent, the percentage of women who reported limitation in their major activity declined substantially as compared to 1964-65 (from 1.4 to 1.2 percent). Among men, on the other hand, between 1960 and 1966 only the age group over 65 reported a reduction in the proportion unable to carry on a major activity (from 21.9 to 20.5 percent). These age-sex relationships are undoubtedly due to the fact that older workers and women suffer above-average levels of unemployment and are the ones most likely to benefit when the labor market tightens and the supply of capable younger men dwindles. (This age comparison was limited to one of two end points because National Health Survey statistics were not available by age for all the years between 1960 and 1966.)

Labor Force Loss

Disability has many undesirable effects on society. One of the more important is the reduction in output that occurs because many of the chronically handicapped do not participate in remunerative employment because of their limitations. My major purpose here is to estimate this labor force loss.

The basic assumption underlying the construction of estimates of labor force loss due to disabling conditions is that persons with physical and mental limitations would participate in the labor force to the same extent as their age and sex counterparts among the nonlimited were it not for their illnesses and injuries. Four types of these estimates are presented here. They diverge from each other because of differences in the definition of the population at risk and differences in the definition of work status. With respect to the population at risk, the constructed estimates of labor force loss are based on the following differences in the labor force par-

participation rates: (a) between persons who report that they have chronic conditions and those who report no chronic ailments and (b) between persons who report an activity limitation associated with chronic conditions and those who report no illnesses or injuries. Divergencies between these estimates can be attributed to the fact that some chronically ill persons who report no activity limitation have been influenced by their illnesses and injuries to retire earlier than they otherwise would have, or to assume less arduous pursuits such as homemaking. (Since the decision to work or not to work depends on a number of considerations, especially for women and older workers, some nonworkers with chronic conditions may consider their limitations to be relatively unimportant. Nevertheless, in some cases, the limitation is the small additional influence for the decision against remunerative work.)

For each of the populations at risk, measures of labor force loss are calculated on the basis of two slightly different measures of work status. One is that of the "usually working" population—those who were essentially full-time workers during the previous year. The other is that of the "labor force," which includes all persons 17 years of age and over who claimed that they were seeking work or who reported

that they worked at any time during the 2-week period preceding the interview. Divergencies between these estimates can be attributed to the fact that estimates based on the second method of identifying work status include the effect of chronic limitations on the number of part-time and intermittent workers and on the small number of new workers entering the labor force.

Six estimates are presented. The first four (one each of the four types mentioned) are based on data collected by the National Health Survey during fiscal years 1962 and 1963, except for the data on the labor force which were available only for 1963. The other two estimates are based on data on the labor force collected during fiscal year 1966, when no information on the usual activity status of the population was collected. In these estimates I extend my previous work (3) by making a surprisingly large adjustment for the effect of differences in labor force participation between men and women, by estimating the loss of part-time and intermittent work due to disability, and by discussing the effect of changes in the level of unemployment on the loss from the labor force due to disability. I also compare persons who reported activity limitation with persons who reported no chronic condition (rather than compare them with persons who reported no activity limitation

Table 1. Preliminary estimates of reduction of total labor force and persons usually working attributable to activity limitation and chronic conditions, by age groups and sex, fiscal years 1962-63 (in millions)

Employment loss	Activity limitation ¹				Chronic conditions ²			
	17-44	45-64	65+	Total	17-44	45-64	65+	Total
Usually working, adjusted by—								
3 age groups.....	0.6	2.0	1.3	4.0	1.1	2.8	1.5	5.4
2 age groups ³6	³ 5.6	-----	6.2	1.1	³ 7.1	-----	8.2
Labor force, adjusted by—								
2 age groups only.....	.8	³ 5.5	-----	6.2	1.9	³ 6.7	-----	8.7
2 age groups and sex:								
Men.....	.3	³ 3.2	-----	3.5	.4	³ 3.3	-----	3.7
Women.....	.4	³ 2.2	-----	2.6	.8	³ 2.7	-----	3.5
Total.....	.7	³ 5.3	-----	6.0	1.2	³ 6.0	-----	7.2

¹ Assuming persons with activity limitation, if not limited, would have the same work participation rates as the part of the population not suffering from chronic conditions.

² Assuming persons with chronic conditions, if not suffering from chronic conditions, would have the same work participation rates as the rest of the population.

³ Includes all persons 45 and over.

NOTES: Some subtotals may not sum to totals

because of rounding. For each age or age and sex group, the difference in percentage "usually working" or in the "labor force" between the population at risk and persons reporting no chronic conditions was multiplied times the number of persons in that group. The estimates are based on National Health Survey data, references 4 and 5a. Information on labor force participation was available only for fiscal year 1962. This should not, however, cause any appreciable error.

as I did previously) because some of these persons may have had chronic conditions. The net effect was to increase slightly—5 to 7 percent—the number of persons who reported activity limitation and who were not working because of their limitations.

The major problem in constructing these estimates is that the data for fiscal years 1962 and 1963 were not broken down as finely as is desirable. The usually working population was broken down only by three broad age groups—17-44, 45-64, and 65 and over—and not by sex, and the labor force data were available only by sex and two age groups—17-44 and 45 and over.

The first step in constructing the estimates of the loss of employment during fiscal years 1962 and 1963 was to estimate the increase in the number of persons who would be working among the available age and sex groups if the population at risk had the same percentages usually working and in the labor force as the parts of the population not suffering from chronic conditions (table 1).

These preliminary figures indicate that estimates of the reduction in the number of workers due to disability must be standardized for sex and at least three age groups. Failure to adjust for sex caused an upward bias of more than 20 percent in the estimate of labor force loss among all persons reporting chronic conditions (7.2 million in contrast to 8.7 million). And adjust-

ing for only two age groups instead of three resulted in upward biases of more than 50 percent in the estimates of the "losses" from the usually working population (4.0 and 5.4 million as opposed to 6.2 and 8.2 million). The much lower employment rates among women and the aged, and the greater tendency of women to report chronic conditions and of the aged to suffer chronic conditions and activity limitation, explain these surprisingly large biases. (The adjustment for sex did not significantly affect the preliminary measures of labor force loss among persons with activity limitation because the percentages of men and women reporting activity limitation of all kinds were almost identical.)

Final estimates for fiscal years 1962 and 1963 (table 2) were derived as follows. To estimate the reduction of the number of workers in each age group in the usually working population, the preliminary estimates in table 1 were changed by the percentage difference in the preliminary estimates that resulted when the loss from the labor force was adjusted for age and sex instead of age only. (The change in the 45 and over category in the preliminary estimate of labor force loss was imputed to both of the older age groups in the loss from the usually working population.) Then 224,000 persons in the usually working population who claimed that they were "unable to carry on" were added to the totals (5). Finally, each of these totals

Table 2. Adjusted estimates of reduction of total labor force and persons usually working attributable to activity limitation and chronic conditions, by age groups and sex, fiscal years 1962-63 (in millions)

Employment loss	Activity limitation ¹				Chronic conditions ²			
	17-44	45-64	65+	Total	17-44	45-64	65+	Total
Usually working, adjusted by—								
Men.....	0.3	1.2	0.8	2.3	0.3	1.4	0.8	2.5
Women.....	.3	.9	.5	1.8	.5	1.2	.6	2.3
Total.....	.6	2.1	1.3	4.0	.8	2.6	1.4	4.8
Labor force, adjusted by—								
Men.....	.3	1.1	.7	2.2	.4	1.3	.7	2.4
Women.....	.4	.8	.5	1.7	.8	1.1	.6	2.5
Total.....	.7	1.9	1.2	3.9	1.2	2.4	1.3	4.9

¹ Assuming persons with activity limitation, if not limited, would have the same work participation rates as the part of the population not suffering from chronic conditions.

² Assuming persons with chronic conditions, if not

suffering from chronic conditions, would have the same work participation rates as the rest of the population.

NOTES: Some subtotals may not sum to total because of rounding. See text for method of derivation of estimates. See notes to table 1 for sources of data.

was distributed according to sex in the same proportion that the preliminary labor force loss was distributed by sex within each age group. (The sex distribution in the age groups 45 and over in the preliminary estimates of the labor force was imputed to the 45-64 and 65 and over categories in the usually working population.)

To estimate the reduction in the labor force, the preliminary estimates were adjusted downward within each age group by the percentage change that occurred when the loss from the usually working population was standardized for three age groupings instead of only two. Then the 45 and over age category was distributed between the 45-64 and the 65 and over age groups in the same proportion that the preliminary estimates of the losses from the usually working population were distributed between these groups.

Although it would have been preferable if the data were available to adjust directly for age and sex during these years rather than to follow this two-step procedure, the heavy overlap between the usually working population and the labor force population makes any serious distortion unlikely. For the purposes of this paper, the description of my procedure for 1962 and 1963 is necessarily brief. However, future data from the National Health Survey will be sufficiently detailed so that replication of this procedure will not be necessary.

Because the data for fiscal year 1966 were available by four age groups and sex, the estimate of labor force loss could be estimated directly (table 3).

Results and Conclusions

The following inferences can be drawn. Chronic conditions severe enough to cause noticeable activity limitation were responsible, in part or in whole, for the loss of 4 million persons from the full-time work force during any 2-week period during fiscal years 1962 and 1963. The loss from the labor force, that is, full-time or part-time workers, among those suffering activity limitation, however, was slightly less—3.9 million persons. Although some persons must have been deterred from part-time employment because of activity-limiting conditions, this was apparently more than offset by the influx into part-time and intermittent employment of

workers who would have worked full time if it were not for their limitations.

Among persons with chronic conditions who did not report activity limitation during these years, 0.8 million probably would have sought full-time employment if it were not for their illnesses or injuries. (The effect of chronic conditions on persons who do not report any activity limitation is measured by comparing the differential effect on labor force status of all chronic conditions and only those chronic conditions that cause activity limitation.) At the minimum, another 0.2 million persons in this group would have looked for less than full-time work were it not for their chronic ailments. The 0.2 million figure is minimal because the total labor force loss increased 0.1 million over the loss from the full-time labor force rather than declining by this amount as it did in the case of persons who reported limitation of activity. In fact, the figure probably was higher since some persons in this group who opted against full-time work because of their conditions probably found part-time employment, offsetting others who would have been part-time employees but who elected not to work at all.

A total of 4.9 million persons in the civilian noninstitutional population, about 7 percent of the labor force, were not employed or seeking work because of chronic conditions during fiscal years 1962 and 1963. The reduction in the number of full-time workers was 4.8 million persons, and the net reduction in the number of part-time workers was 0.1 million persons. Of course, because of normal unemployment, the reduction in employed workers would be somewhat less, perhaps about 4.7 million persons.

As expected, women and aged persons were more likely to withdraw from the labor force as a result of physical or mental limitations than men or younger persons. Although about 36 percent of the labor force consisted of women, they comprised about 50 percent of those not in the labor force because of chronic conditions. This divergence is mostly attributable to the fact that about four-fifths of the persons with chronic conditions who did not report any activity limitation but who evidently did not seek work because of their conditions in 1962 and 1963 were women under 65, a relationship that was even more pronounced

in 1966. Therefore, a somewhat contradictory conclusion can be drawn—women who suffer from chronic conditions are less likely than men to report that they are unable to carry on a major activity but are more likely to withdraw from the labor force. Undoubtedly, this is explained by the previously mentioned fact that many women can choose between keeping house and working in remunerative employment.

Similarly, about 60 percent of the labor force consisted of persons aged 17–44, 35 percent consisted of persons aged 45–64, and only about 5 percent was made up of persons over 65. However, the comparable proportions among persons who withdrew from the labor force in 1962 and 1963 were 24 percent, 49 percent, and 27 percent. The percentages for the age groups 45–64 and over 65 were almost identical in fiscal 1966. Discrimination against workers over 45 and the retirement option enjoyed by most workers over 65 undoubtedly explain much of these age relationships.

The estimates of labor force loss due to disabling conditions in 1962 are comparable with those for 1966. Despite the increasing proportion of the population who reported chronic conditions (slightly more than 10 percent) and the growth of population (about 5 percent) and greater age standardization, the estimated loss of labor force due to chronic conditions, both activity limiting and non-activity limiting, declined 0.5 million. The largest decrease, about 0.6 million, took place among men; the estimated loss actually increased among women. Greater age standardization

has the effect of increasing the estimate of labor force loss since age, chronic condition status, activity limitation status, and labor force participation are all positively related. For comparative purposes, I recalculated the labor force loss in 1966 using the same age groupings as in 1962–63. The recalculated labor force loss was 4.2 million whereas my actual estimate was 4.4 million. Although the estimated “loss” appears to be negative among males aged 17–24 in 1966, this is undoubtedly a consequence of the fact that young men under 20 years old are less likely to suffer chronic conditions and less likely to be in the labor force than slightly older men. A finer age adjustment would raise the estimate of labor force loss.

Undoubtedly, the tight labor market in 1966, as compared to the 1962 period, explains most of the change in the estimates (the unemployment rate dropped from 5.6 percent in 1962 to 3.8 percent in 1966). Evidently, the handicapped are more likely than the nonhandicapped to leave the labor market in slack times.

This raises a question concerning the rationale of my approach to measuring labor force loss due to disabling conditions. My assumption is that since both the handicapped and the nonhandicapped face the same labor market conditions, differences in the labor force participation rates between these groups are due solely to the limitations of the former. However, it appears that this difference varies with the level of unemployment. It can be argued, therefore, that measures of labor force loss due to disabling conditions are valid only if based on full employment conditions.

Table 3. Estimates of reduction of labor force attributable to activity limitation and chronic conditions, by age groups and sex, fiscal year 1966 (in millions)

Sex	Activity limitation ¹					Chronic conditions ²				
	17-24	25-44	45-64	65+	Total	17-24	25-44	45-64	65+	Total
Men.....	0.1	0.2	1.0	0.8	2.1	-0.1	0.2	1.1	0.7	1.9
Women.....	.1	.2	.8	.5	1.6	.2	.7	1.1	.5	2.5
Total.....	.2	.4	1.8	1.3	3.7	.1	.9	2.2	1.2	4.4

¹ Assuming persons with activity limitation, if not limited, would have the same work participation rates as the part of the population not suffering from chronic conditions.

² Assuming persons with chronic conditions, if not suffering from chronic conditions, would have the same

work participation rates as the rest of the population.

NOTES: Some subtotals may not sum to total because of rounding. See text for method of derivation. The estimates are based on unpublished National Health Survey data.

Since the loss from the labor force among persons who reported activity limitation declined only 0.2 million or about 5 percent between 1962-63 and 1966, the greatest beneficiaries of the tight labor market among the chronically ill and injured were those who did not report any activity limitation. Moreover, increased employment among men, 17-64 years old, explains almost all of the increased employment among the handicapped. However, this inference does not contradict my earlier conclusion that the effect of changes in unemployment rates on disability rates is stronger among men 65 and over and women, since almost the entire reduction in the estimate of labor force loss was among persons who did not report any activity limitation associated with their conditions. Moreover, the small reduction in the estimate of labor force loss that occurred among persons who reported activity limitation took place among women and middle-aged men.

Although my estimates of labor force loss due to disability are large, they would have been even larger if I had been able to use a more refined age breakdown and if I had taken account of persons not included or inadequately reported in the National Health Survey such as the institutionalized, the mentally ill, the mentally retarded, and the alcoholic. Moreover, an estimate of the total labor force loss due to disability should also take into account the 4.6 million persons with chronic illnesses or injuries who were usually working in fiscal 1966 and who reported partial limitation in the amount or kind of work they could do and the unknown number of handicapped persons who were employed in less-productive jobs than they would have been had they not been handicapped.

Summary

Based on data from the National Health Survey for fiscal year 1966, almost half of the civilian noninstitutional population in the United States suffers from a chronic physical or mental condition. About one of every 12 persons re-

ported either partial or total limitation in his major activity.

The proportion of persons who report limitation of activity due to physical or mental conditions is greater among the aged, uneducated, nonwhite, and rural than among the rest of the population. Although a number of factors explain these differences, the most interesting and important is the combination effect of two or more employment impediments which causes aged, uneducated, or nonwhite persons who suffer from serious physical or mental conditions to have their work prospects reduced far more than the sum of the independent effects of their work impediments.

The enormity of the burden of disability was established by estimating that in 1966, if it had not been for their limitations, at least 4.4 million additional persons in the noninstitutional population would have been in the labor force, almost all of whom would have worked full time.

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